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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,341	12/12/2001	Yongcai Wang	82662HEC	6168

7590  
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04/19/2007

EXAMINER

SCHWARTZ, PAMELA R

ART UNIT

PAPER NUMBER

1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/021,341	Applicant(s) WANG ET AL.	
	Examiner Pamela R. Schwartz	Art Unit 1774	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,8-11,14,15,17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8-11,14,15,17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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1. Claims 1, 8, 9, 11, 14-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (EP 903,246) taken alone for reasons of record or in view of Saito et al. (6,217,166) or Cuch et al. (7,056,969). Kitamura et al. disclose an ink jet recording material comprising one or more ink receiving layers on a support (p. 3, lines 43-50). The ink receiving layers include colloidal pigment particles that may be of colloidal silica and have an average particles size of 10 to 300 nm and an ultraviolet ray absorber. Calcium carbonate is an additional pigment which may be present in the ink receiving layers [000020, 0021]. The UV absorber is present in an amount of .25 to 25 parts by weight per 100 parts of the total amount of pigment (p. 5, lines 22-24). The ink receiving layer(s) may also contain an antioxidant which is present in an amount of 1 to 10,000 parts by weight by 100 parts UV absorber (see p. 5. lines 53-57). The antioxidants may be phenolic or sulfur containing, among others (see p. 6, lines 3-44). Antioxidants may be used as a water insoluble powder or as an emulsion, have an average particle size of 500 nm or less, and are used in an amount from 0.5 to 25 parts by weight per 100 parts by weight of the pigment. These materials are mixed with binder and other additives (see p. 6, line 45 to Page 7, lines 23). The binder may be a water-soluble polymer or a latex polymer. Binder is present in an amount of preferably 5 to 100 parts by solid weight to 100 parts by weight of the pigment. Using the ratios set forth above, pigment, binder and antioxidant may be present in the amounts set forth by the instant claims.

Additionally, the reference discloses that dispersants may be present. It would have been obvious to use known additives such as a dispersant in quantity necessary

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to properly disperse the materials. The prior art discloses use of either one ink receiving layer or two such layers (see page 7, line 56 to page 8, line 6). It appears that that the layers may be the same or different in composition since the additional layer that is not exposed is not required to have UV absorber present. The outermost layer is present in an amount of 1 to 30 g/m<sup>2</sup> which should permit stabilizer to be present in the range recited by claim 13.

From the description of the ink receiving layer in the reference, the ink receiving layer will be capable of holding ink near the surface above the base layer when ink is applied. See for example, [0046] where the reference states that a cationic compound may be present in the ink receiving layer to enhance ink-fixing and [0053] where the reference describes a "principal" ink receiving layer that is preferably the outermost layer. With respect to claim 17, it is noted that the reference may include a transition metal oxide as the ultraviolet ray absorber [0025]. Applicants include such a material as an inorganic oxide. The reference does not require the presence of an organic ultraviolet ray absorber as well. Therefore, claim 17 is considered to read on Kitamura et al.

With respect to the amendments to claim 1, it is noted that the pigment size for the colloidal pigment is disclosed as 10 to 500 nm [0015] and of the additional pigment is 2 microns or less [0021]. Ratios of inorganic particles to other components would overlap with applicants' claim requirement that greater than 50% by weight of the base layer is inorganic particles [0021, 0029, 0041, 0045]. The amorphous silica particles of the reference may be silica gel, for examples, the tradenamed silica of Silica sol A1

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[0070]. The reference discloses calcium carbonate generically, but does not disclose the particulars of how the calcium carbonate was produced.

The secondary references each disclose precipitated calcium carbonate used in ink jet recording materials. Saito et al. disclose a particle size of 5 to 500 nm (see col. 4, lines 30-65). Cuch et al. disclose that calcium carbonate is a preferred calcium carbonate, is of particle size 100 to 5000 nm, and is commercially available under certain tradenames (see col. 4, lines 50-64). Since specific precipitated calcium carbonates are well known for inclusion in ink jet recording layers and were commercially available at the time of applicants' invention, it would have been obvious to one of ordinary skill in the art to include a commercially available calcium carbonate that is well-known in the art for such use as the calcium carbonate disclosed generically by the primary reference.

2. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura et al. (EP 903246) taken alone or in view of Saito et al. (6,217,166) or Cuch et al. (7,056,969) as applied to claim 1 above, and further in view of Chu et al. (6,440,537) for reasons of record and for reasons given above.

Chu et al. teach an ink jet recording medium including core/shell latex particles as instantly claimed. While Chu et al. do not refer to the latex particles as a binder, since a binder is normally required but is only an optional ingredient in the recording layer of Chu et al., it would have been obvious to one of ordinary skill in the art that the core/shell latex of Chu et al. may be used to serve the function of binder for the layer. This is especially true due to the glass transition temperature of the shell

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materials of Chu et al. (see col. 3, lines 23-49 and col. 4, lines 41-52). Chu et al. disclose use of the core/shell latex diminishes cracking which would have been an important characteristic in the glossy medium of the primary reference. Consequently, it would have been obvious to one of ordinary skill in the art to utilize core/shell latex as some or all of the binder of the primary reference in order to diminish surface cracks and improve gloss.

3. Applicant's arguments filed January 25, 2007 have been fully considered but they are not persuasive. Contrary to applicants' assertions, Kitamura et al. do not exclude UV absorbers and antioxidants from layers other than the outermost layer. See for example [0053] which states that "at least one of them [the layers] is the principal ink receiving layer comprising the specific fine colloid particles and the ultraviolet ray absorber." This suggests that more than one layer may be the principal layer and include this specific composition. The examiner agrees that the compositions of the ink receiving layers do not have to be the same, however, disclosures such as that in [0034] suggest inclusion of antioxidant in "at least one layer of the ink receiving layers." The examiner agrees that Kitamura et al. suggests embodiments where ultraviolet ray absorber is only in the outer layer, but there are also embodiments suggested that have ultraviolet ray absorber in multiple layers. The reference disclosure is not limited by the specific disclosed examples. Applicants are relying on the most narrow reading of the primary reference but it is the examiner's responsibility to give the reference its broadest reasonable interpretation. It is reasonable in light of the suggestion of the reference that more than one principal layer may be present and that such layers would generally not

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be as thick as a single principal layer, that UV absorbers and antioxidants would be included in all of the principal layers. See [0053]. It is noted that consistent with the reference, applicants' outer layer may be relatively thin.

With respect to the choice of pigments, the reference specifically suggests silica gel in the examples, so selection of one additional conventionally used pigment would not be considered burdensome or unobvious or result in infinite possibilities as applicants' suggest. All of these particles are well known to one of ordinary skill in this art and selection from among them would have been considered obvious with predictable results at the time of applicants' invention. It is also noted that the list of inorganic particles is similar to that included by applicants at page 5 of the specification.

Finally the suggestion to include antioxidant in "at least one layer" is at [0034] of the primary reference.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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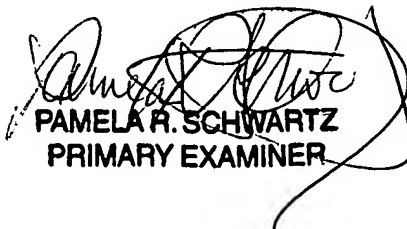
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela Schwartz whose telephone number is (571) 272-1528.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PRSchwartz  
April 13, 2007

  
PAMELA R. SCHWARTZ  
PRIMARY EXAMINER